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Baillargeon et al.(10) **Pub. No.: US 2003/0053511 A1**(43) **Pub. Date: Mar. 20, 2003**(54) **LASER HAVING MULTIPLE REFLECTIVITY
BAND REFLECTOR****Publication Classification**(75) Inventors: **James N. Baillargeon**, Springfield, NJ
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SUGAR LAND, TX 77478 (US)(57) **ABSTRACT**(73) Assignee: **APPLIED OPTOELECTRONICS,**
INC.(21) Appl. No.: **10/198,373**(22) Filed: **Jul. 18, 2002****Related U.S. Application Data**(63) Continuation of application No. 10/029,008, filed on
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A multiple reflectivity band reflector (MRBR) includes a stack of dielectric layers, arranged so that the reflector has a reflectivity profile comprising a plurality of reflectivity bands, e.g. at least first and second wavelength bands with reflectivity above a lasing threshold reflectivity, separated by a third wavelength band between the first and second wavelength bands having reflectivity below the lasing threshold reflectivity. A laser having at least a first mirror and an MRBR as the second mirror has a laser cavity, at least a portion of which is defined by the first mirror and the MRBR. An active region located within the laser cavity contains a material that is capable of stimulated emission at one or more wavelengths in the first and second wavelength bands. The gain spectrum of the laser is adjusted to select one of the first and second wavelength bands, thereby providing for lasing at a wavelength within the selected wavelength band. The laser may be, e.g., a monolithic VCSEL or a one-section or two-section external-cavity VECSEL having the MRBR as one of its cavity mirrors.

